using a Group V element other than P, has an energy level of conduction band higher than that of the first channel layer, has a band gap wider than that of the first channel layer, and has a thickness larger than that of the first channel layer.

3. (Amended) The high electron mobility transistor as described in claim 1, wherein said electron-supplying layer is composed of $In_{1-y}Al_yAs$, the first channel layer is composed of $In_{1-x}Ga_xAs$, and the second channel layer is composed of $In_{1-x}(Al_{1-z}Ga_z)_xAs$.

8. (Amended) The high electron mobility transistor as described in claim 1, wherein said electron-supplying layer is composed of $In_{1-y}Al_yAs$, the first channel layer is composed of $In_{1-x}Ga_xAs$, and the second channel layer is composed of $In_{1-x}Ga_xAs$ with the In composition ratio lower and the gallium composition ratio higher than those in the first channel layer.

9. (Amended) The high electron mobility transistor as described in claim 1, wherein an element separation groove is formed which extends from said electron-supplying layer to said buffer layer.

Please add the following new claims:

12. (New) A high electron mobility transistor using a Group III-V compound semiconductor, comprising

an undoped second channel layer laminated on an InP substrate via a buffer layer;

an undoped first channel layer laminated on said second channel layer; and

a doped electron-supplying layer laminated on said first channel layer,

wherein said first channel layer is composed of $In_{1-x}Ga_xAs$ and has an energy layer level of conduction band lower than that of said electron-supplying layer,

said second channel layer is composed of a Group III-V compound semiconductor using a Group V element other than P, has an energy level of conduction band higher than that of the first channel layer, and has a band gap wider than that of the first channel layer,

wherein said electron-supplying layer is composed of $In_{1-y}Al_yAs$, the first channel layer is composed of $In_{1-x}Ga_xAs$, and the second channel layer is composed of $In_{1-x}(Al_{1-z}Ga_z)_xAs$,

wherein the composition ratio (1-z) of Al element in said second channel layer is 0.05~0.5.

B4 cont'd

13. (New) The high electron mobility transistor as described in claim 4, wherein the thickness of said first channel layer is 3~7 nm.

14. (New) The high electron mobility transistor as described in claim 4, wherein the thickness of said second channel layer is 10~20 nm.

15. (New) The high electron mobility transistor as described in claim 4, wherein the composition ratio (1~z) of Al element in said second channel layer is 0.05~0.5.

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16. (New) The high electron mobility transistor as described in claim 2, wherein said electron-supplying layer is composed of $In_{1-y}Al_yAs$, the first channel layer is composed of $In_{1-x}Ga_xAs$, and the second channel layer is composed of $In_{1-x}Ga_xAs$ with the In composition ratio lower and the gallium composition ratio higher than those in the first channel layer.

17. (New) The high electron mobility transistor as described in claim 2, wherein an element separation groove is formed which extends from said electron-supplying layer to said buffer layer.

B4 cont'd

18. (New) The high electron mobility transistor as described in claim 2, wherein said electron-supplying layer is composed of $In_{1-y}Al_yAs$, the first channel layer is composed of $In_{1-x}Ga_xAs$, and the second channel layer is composed of $In_{1-x}(Al_{1-z}Ga_z)_xAs$.

19. (New) The high electron mobility transistor as described in claim 2, wherein said electron-supplying layer is composed of $In_{1-y}Al_yAs$, the first channel layer is composed of $In_{1-x}Ga_xAs$, and the second channel layer is composed of $In_{1-x}Ga_xAs$ with the In composition ratio lower and the gallium composition ratio higher than those in the first channel layer.

20. (New) The high electron mobility transistor as described in claim 2, wherein an element separation groove is formed which extends from said electron-supplying layer to said buffer layer.